

Appl. No. 10/803,310
Amdt. dated December 20, 2007
Reply to Office Action of October 17, 2007

REMARKS

Reconsideration of this application is respectfully requested. Applicants believe that consideration of this amendment is proper because they have attempted to comply with every requirement expressly set forth in the previous Office Action dated October 17, 2007 and believe the application is now in condition for allowance.

A Request for Continued Examination is attached hereto.

Please cancel claims 8-14 without prejudice.

Claims 5-7 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kuo et al. in U.S. Patent No. 6,593,267 in view of Alexandrite et al. in WO99/47598 and further in view of Lewis et al. in U.S. Patent No. 4,510,257. Applicants respectfully submit that this rejection is improper and should be withdrawn as no *prima facie* case of obviousness has been established.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990). Second, there must be a reasonable expectation of

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success. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959). Finally, to establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). "All words in a claim must be considered in judging the patentability of that claim against the prior art." *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970). If an independent claim is nonobvious under 35 U.S.C. § 103, then any claim depending therefrom is nonobvious. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).

In the rejection at hand, the references provide no motivation to combine. Even if the references are combined, there is no likelihood of success from the combination. Further, all elements of Applicants' invention are not disclosed in the combined references.

Kuo et al teaches a supported bulky metallocene catalyst system with a carboxylate metal salt. This is a physical mixture of the two catalysts, not a chemical

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combination. As discussed in col. 17, lines 34-62, the supported metallocene catalyst and the carboxylate metal salt are combined using a mechanical mixing means. As admitted by the Examiner there is no suggestion of intercalating the carboxylate metal salt with the supported catalyst. The Office action further fails to suggest any motivation for intercalating or using any chemical means of combining the metal salt onto the supported catalyst, particularly when Kuo specifies a mechanical combination of the two components. Thus, no motivation of combining these references has been found in the art.

Further regarding the combination of Kuo and Alexandre, there is no likelihood of success if the combination were to be attempted. First, Kuo teaches the use of montmorillonite as a useful support, while Alexandre teaches the use of a modified montmorillonite as a support. There are no teachings or suggestions that the use of a modified monmorillonite would be useful in Kuo. Kuo specifies mechanical mixing. If it were modified by treatment with acids or ion exchanged to increase the interlayer spacing, Applicants suggest that these modifications would change the principle of operation of Kuo, rendering it unsuitable for its stated purpose.

Additionally, none of these references teaches or suggests a catalyst for copolymerization of carbon dioxide and epoxides to form poly(alkylene carbonate)s. Although this does not speak to the patentability of the catalyst *per se*, failure to teach

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that the catalysts of Kuo and Alexandre have activity and selectivity for similar reactions speaks to the likelihood of success that can be expected from modifying the catalysts of the prior art. Since neither catalyst of the prior art is known to be useful for copolymerization of carbon dioxide and epoxides, it is highly unlikely that modifications of these catalysts would be useful for that purpose. Thus, since the prior art fails to teach or suggest that the proposed modification would produce a catalyst useful for its stated purpose, no *prima facie* case of obviousness has been established.

Even if Kuo and Alexandre were combined as taught in the outstanding Office Action, several elements of Applicants' claims would be absent from the combination. Both Kuo and Alexandre fail to teach or suggest calcining a delaminated layered product; dissolving the zinc dicarboxylate in a polar solvent with a pH of 1.0 to 4.0; introducing the calcined delaminated product into the zinc dicarboxylate solution; removing the polar solvent; refluxing the crude catalyst in a solvent of less polarity and separating the intercalated catalyst by filtration. All claims at issue in this application include these steps, which have been ignored in this Office Action. Since at least six features of Applicants' claims are not taught or suggested by the combination of Kuo and Alexandre, no *prima facie* case of obviousness can be established.

Further, there has been no *prima facie* case of obviousness established for the combination of Lewis with Kuo and Alexandre. The Examiner relies upon Lewis to

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show that it is well known to calcine a silica matrix to lock the matrix into form. However, Lewis teaches calcining of the finished catalyst after the pillaring agent and all active components have been added. Applicants' process calcines the delaminated inorganic material prior to the addition of the zinc dicarboxylate. None of the prior art references teach motivation for or likelihood of success for calcination of the delaminated support at this point in the process. Further, introducing the calcined matrix into a strong acid is likely to change the chemical nature of the reactive sites within the catalyst matrix compared to when calcining is the last step in the process. Applicants' claims also feature calcining of the matrix in a muffle furnace, a feature that is not even addressed by the Examiner. Thus, no *prima facie* case of obviousness has been established with respect to the Lewis reference.

Applicants respectfully suggest that in the outstanding Action, the rejections evidence "picking and choosing" features of various references and combining them when there is no suggestion in those references to do so. It is impermissible within the framework of a 35 U.S.C. §. 103 rejection to pick and choose from any one reference only so much of it as will support a given position to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one skilled in the art. This is particularly obvious in the instant arguments regarding combining of the inorganic matrix with the zinc dicarboxylate and calcining of the catalyst. Furthermore,

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obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention absent some teaching or suggestion supporting the combination. Teachings of references can be combined only if there is some suggestion or incentive to do so.

No *prima facie* case of obviousness has been established with respect to the combination of Kuo in view of Alexandre or the combination of Kuo and Alexandre in view of Lewis. The Examiner has failed to show that there is motivation to combine any of these references or that there would be a likelihood of success if such a combination were made. Further, at least six elements of Applicants' claims are not taught by Kuo in view of Alexandre, despite the Examiner's statement that all claim elements are taught in the combination save calcination of the catalyst. Lewis even fails to cure the defects of Kuo and Alexandre since it teaches calcination of the final catalyst, not calcination of the inorganic material prior to chemical addition of the metal carboxylate. Since all three elements of *prima facie* obviousness are absent, this rejection should be withdrawn and the subject claims allowed to issue.

By the above arguments and amendments, Applicants believe that they have complied with all requirements expressly set forth in the pending Office Action. Issuance of a Notice of Allowance on the remaining allowed claims is respectfully requested. Should the Examiner discover there are remaining issues which may be

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resolved by a telephone interview, he is invited to contact Applicants' undersigned attorney at the telephone number listed below.

Respectfully submitted,

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